

Minutes, 3/03/04 Tevatron BPM Upgrade Meeting
Stephen Wolbers

This set of minutes, and all future minutes, are or will be deposited in the Beams Document Database as document number 792.

The agenda as announced consisted of:

1. Report from Steve and Bob.
2. Reports from L2 managers.
3. AOB.

1. Report from Bob and Steve.

- Bob is working with Peter Prieto to specify a filter for the new Echotek system that will allow us to measure anti-protons using timing.

- The DOE review was successful. Steve sent out some comments from the closeout last week. The closeout is not yet posted. Nor is the final report, which is probably not ready yet.

- The big requisitions (Echotek or equivalent, MVME processors, VME crates) are all moving along, we believe. The VME crate requisition is being held in purchasing until we all agree on the final crate layout.

2. Reports from L2 Managers

Technical Coordinator: Jim Steimel

- Jim showed some results from the teststand wiretest. The plots that he showed are included as a separate file in the minutes doc (792). Jim will write a complete description and will make it into a separate document. What was shown was the response of the system when the wire (representing the beam) was moved along the axis of the measuring coordinate from -15 mm to +15 mm and in the orthogonal coordinate at -10, -5, 0, +5, +10 mm. Mostly the behavior was as expected but there is still some analysis to do to understand how much nonlinearity there is and how to characterize it.

- Thursday's BPM meeting (March 4) will be dedicated to the analog signal front-end for the new system.

- Jim is working on a second draft of a commissioning plan, trying to fold in more information.

- Jim is starting to think about calibration constants and how they are handled in this system.

- A question was asked about the upcoming shutdown (March 15) and what, if anything, the Tev BPM upgrade might want to do in the tunnel during that time. A long discussion ensued about the pbar ends of the pickups, when we should connect them, whether connecting them affects the measurements, how we can test this, etc. Jim will organize an effort to sort this out.

- Jim mentioned two comments from the review:

1. There may be a request to use the new BPM electronics to verify crossing angles and the beta function at the IP's.

2. Also a request to trigger BPM measurements on magnet current readings.

In either case the project will await specific requests before doing anything.

Mike Martens:

- Mike worked on the software specification document during the past week.

- Mike is also looking at Rob Kutschke's work. Mike is ready to do the proton scan.

- Mike is working with Brian on the online software specification. Soon to be released to the whole group.

Vince Pavlicek:

- Vince's group is working on the timing and diagnostics design. This will be presented on Thursday.

- Working on the software specification document.

- A hardware specification document is coming soon.

Rob Kutschke:

- Rob gave a nice talk about work that he is doing analyzing the Echotek prototype readout of two BPMs. All of the plots can be found in the Doc DB as doc 1059.

- Rob will write this work up more completely in the future. I will try to summarize. First, there is some phase information "problem" which is not yet understood but can be hand-corrected by Rob to get reasonable answers. Nevertheless, it is worrisome and does need some serious investigation.

- Some highlights of the plots. This from the record store on February 27, horizontal BPM VA14.

- The proton position moves as the antiprotons are loaded. The movement is less than 200 microns, in steps of about 20 microns. Is this the antiproton signal contaminating the proton signal?

- The p and pbars don't move the same way through the ramp and squeeze as in the horizontal plane.

- Both p and pbar resolutions measured during the store are 8.0 microns. This is the first measurement of the pbar resolution from this system!

- Rob also looked at a Feb 18 shot and store, this time with a horizontal BPM, HA15. Many of the features are the same. However, the resolution is higher -- 23.5 microns for pbars and 19.1 microns for protons. Not sure whether this is beam motion or something else is contributing.

3. AOB.